REMARKS

Claims 1-21 are pending in the application. Claims 1-21 are rejected. Claims 22 and 23 have been added. Reconsideration of the rejected claims is respectfully requested.

Interview

Applicant would like to thank the Examiner for discussing this case on March 1, 2007. All of the claims have been amended as discussed in the interview and therefore should be in condition for allowance.

Claim Rejections - 35 U.S.C. § 112

Claims 2, 6, 13, 17, and 21 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 2, 6, 13, 17, and 21 have been reworded and therefore are allowed under 35 U.S.C. § 112.

Claim Rejections - 35 U.S.C. § 103

Claims 10-21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Walker in view of Bhattacharjee. The Examiner states that Walker discloses

A) a processor configured to assign activity identifiers to different individual subgroups of database access instructions for the same transaction that each perform one or more operations on multiple data items in a database, the activity identifiers assigned to and associated with the database access instructions independently of any relationship that may exist between the multiple data items in the database accessed by the database access instructions. (Walker pg. 5, [0079]; pg. 6, [0098,0102]; pg. 9,[0133].

Element A has been amended to specify assign activity identifiers to different individual subgroups of database access instructions for a same transaction that each perform one or more operations on multiple data items in a database. This is clearly shown in FIG. 2 where the subgroups of database instructions 15 are each associated with an activity identifier 14. This is further shown in FIGS. 3 and 4.

The activity identifiers as specified in claim 10 do not correspond to the operation id described in Walker. No where does Walker suggest assigning activity identifiers to different individual subgroups of data base access instructions for a same transaction. For example, Walker at [0098] discusses obtaining a "operation id". The operation id is obtained once for the entire operation (see last sentence of [0118] and last sentence of [106]) and the operation includes all of the related agent actions (or requests) initiated on behalf of a single client [0055].

The operations or "operation id" in Walker has nothing to do with different individual subgroups of database access instructions that each perform one or more operations on multiple data items in a database as specified in claim 10. Conversely, the client operations in Walker relate to the actions on various agents [0079].

Walker also does not suggest **the activity identifiers assigned to and associated with the database access instructions independently of any relationship that may exist between the multiple data items in the database accessed by the database access instructions.**

Walker uses the client operation to compete for associated resources [0046]. The resources are memory, disk drives, fiber optic channels etc [0005]. The operation Id in Walker is related to accessing these resources and not associated to individual database access instructions independently of any relationship that may exist between the multiple data items as specified in claim 10 [0100].

B1) the processor further configured to assign multiple locks to the multiple data items corresponding with the operations performed on the multiple data items pursuant to the database access instructions associated with the same activity identifiers.

The locks described in Walker are only associated with locking resources and not associated in any way with the locks that correspond to the operations performed on multiple data items pursuant to database access instructions assigned to the same activity identifiers as specified in claim 10.

See [0100] in Walker where the locks are only applied and held on resources at the agent level and not to data items corresponding with the operations performed on the multiple data items pursuant to the database access instructions associated with the same activity identifiers as specified in claim 10. In Walker, once a locking aware client 210 has an operation id, the locking aware client 1210 locks <u>resources</u> that the locking aware client intends to change [0109]. As described above, the resources are defined in Walker as memory, disk drives, fiber optic channels etc [0005], not **multiple data items corresponding with the operations performed on the multiple data items pursuant to the database access instructions associated with the same activity identifiers as specified in claim 10.**

The Examiner acknowledges that Walker does not disclose

B2) to only release the multiple locks when all of the multiple operations are completed for all of the database access instructions assigned to the same activity identifiers. However, the Examiner states that Bhattacharjee discloses **B2**.

As discussed in the previous office action response, locks in Bhattacharjee are data dependant where clusters of related row and column data is locked until all operations on the data are completed. The locks are not arbitrarily set on data elements defined by database access instructions as specified in claim 10. If a data base access instruction is associated

with a different unrelated set of data, it cannot be associated with a same activity identifier as specified in claim 10. Therefore, the lock on the unrelated set of data will not be released when **the multiple operations are completed for all of the database access instructions assigned to the same activity identifiers as specified in claim 10.**

Accordingly, claim 10 is patentable under 35 U.S.C. § 103(a) over Walker in view of Bhattacharjee.

Claim 14 has been amended to further specify assigning activity identifiers to database access instructions that perform multiple operations on multiple data items in a database and assigning the activity identifiers to the multiple locks that are associated with the same database access instructions. None of the cited prior art assigns the same activity identifiers to both database access instructions and associated locks.

Claims 1, 5, and 18 have been amended similar to claim 10 and/or 14 and are therefore allowable for the same reasons as claim 10 and/or 14.

New Claims 22 and 23 have been added. Claim 22 specifies assigning the locks associated transaction identifiers and associated activity identifiers and releasing groups of the locks only when all of the multiple operations are completed for all of the database access instructions having the same assigned transaction identifiers and activity identifiers.

This is clearly shown in FIG. 6. There is no suggestion in any of the cited prior art of assigning both a transaction identifier and activity identifier to database access instructions and associated locks.

Claim 23 specifies assigning a first activity identifier and a transaction identifier to a first group of database access instructions from the same transaction, assigning a first set of locks to a first set of data items accessed by the first group of database access instructions, identifying a second subset of data items from the first set of data items according to the first

group of database access instructions, and releasing the first set of locks when all of the operations for the first group of database access instructions have completed.

Claim 23 further specifies assigning a second activity identifier and the same transaction identifier to a second group of database access instructions from the same transaction that modify the second subset of data items identified by the first group of database access instructions, assign a second set of locks to the second subset of data items, and release the second set of locks only when all of the operations for the second group of database access instructions have completed modification of the second subset of data items. This is clearly shown in FIG. 5.   None of the cited prior art suggest assigning two different activity identifiers and assign and release associated locks to two different sets of database access instructions where the first group of database access instructions identify a subset of data items and the second group of database access instruction modify the subset of data items identified by the first group of database access instructions.
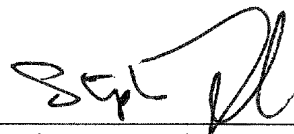
CONCLUSION

For the foregoing reasons, reconsideration of claims 1-23 of the application as amended is requested. The Examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

Respectfully submitted,

Customer No. 20575   MARGER JOHNSON & McCOLLOM, P.C.

Stephen S. Ford
Reg. No. 35,139

MARGER JOHNSON & McCOLLOM, P.C.
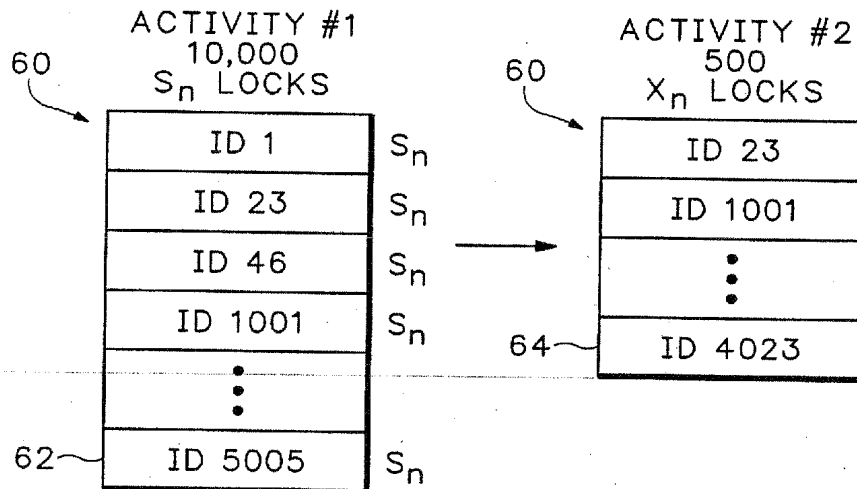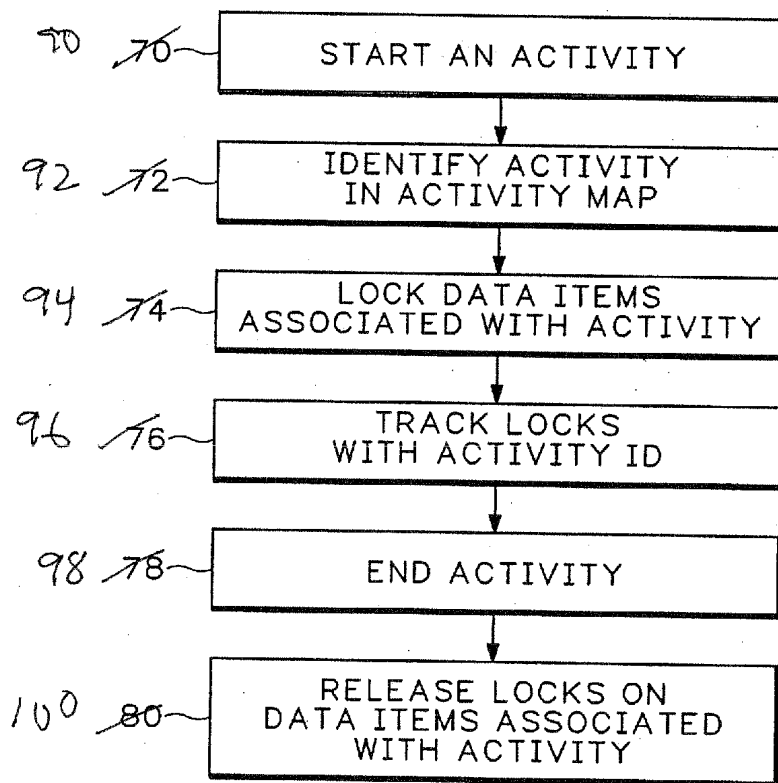210 SW Morrison Street, Suite 400
Portland, OR 97204

Sanjay Verma et al.
METHOD AND APPARATUS FOR INCREASING TRANSACTION CONCURRENCY
BY EARLY RELEASE OF LOCKS IN GROUPS
Attorney Docket No. 3222-005/Application No. 10/696,416

ANNOTATED SHEET SHOWING CHANGES

ACTIVITY #1
10,000
S_n LOCKS

60

ID 1	S_n
ID 23	S_n
ID 46	S_n
ID 1001	S_n
⋮	
ID 5005	S_n

62

ACTIVITY #2
500
X_n LOCKS

60

| ID 23 |
| ID 1001 |
| ⋮ |
| ID 4023 |

64

FIG.5

70 76 — START AN ACTIVITY

92 72 — IDENTIFY ACTIVITY
IN ACTIVITY MAP

94 74 — LOCK DATA ITEMS
ASSOCIATED WITH ACTIVITY

96 76 — TRACK LOCKS
WITH ACTIVITY ID

98 78 — END ACTIVITY

100 80 — RELEASE LOCKS ON
DATA ITEMS ASSOCIATED
WITH ACTIVITY

FIG.7